

पशु आहार के रूप में विलायक निष्कर्षित
मूँगफली की खली — विशिष्टि
(द्वितीय पुनरीक्षण)

**Solvent Extracted Groundnut Oil
Cake as Livestock Feed Ingredient —
Specification**

(Second Revision)

ICS 65.120

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FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Animal Husbandry, Feeds and Equipment Sectional Committee had been approved by the Food and Agriculture Division Council.

Oil cake (meal), obtained from groundnuts (*Arachis Hypogea Linn.*), by the solvent extraction process is a rich source of protein and is being extensively used as a protein supplement in livestock rations.

This standard was first published in 1966 and subsequently revised in 1982. In the first revision, the requirements were modified considering the developments in the manufacturing, trading, storing and consumption pattern of the product and the test methods for various requirements were aligned with IS 7874 (Part 1).

In this revision (*second revision*), the standard has been updated considering latest technological developments and manufacturing practices. Following major changes have been made in this revision:

- a) Requirement for aflatoxin B1 has been introduced in the standard.
- b) Requirement of crude protein has been updated.
- c) Requirements of castor husk and mahua oilcake have been introduced in the standard.
- d) Methods of tests prescribed for determination of crude protein, crude fibre and acid insoluble ash have been updated.

The composition of the Committee responsible for formulation of the standard is given in Annex A.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 ‘Rules for rounding off numerical values (*second revision*)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

SOLVENT EXTRACTED GROUNDNUT OIL CAKE AS LIVESTOCK FEED INGREDIENT — SPECIFICATION

(Second Revision)

1 SCOPE

This standard prescribes the requirements and the methods of sampling and test for solvent extracted groundnut oilcake (meal) used as livestock feed ingredient.

2 REFERENCES

The following standards contain provisions which through reference in this text, constitute provision of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

<i>IS No.</i>	<i>Title</i>	<i>IS No.</i>	<i>Title</i>
1070 : 1992	Reagent grade water (<i>third revision</i>)	5983 (Part 2) : 2021/ISO 5983-2 : 2009	Animal feeding stuffs - Determination of nitrogen content and calculation of crude protein content: Part 2 Block digestion and steam distillation method (<i>first revision</i>)
1712 : 2022	Cottonseed oilcake as livestock feed ingredient — Specification (<i>third revision</i>)	IS/ISO 6865 : 2000	Animal feeding stuffs — Determination of crude fibre content — Method with intermediate filtration
1713 : 2022	Decorticated groundnut oilcake as livestock feed ingredient — Specification (<i>third revision</i>)	14826 : 2021/ISO 5985 : 2002	Animal feeding stuffs — Determination of ash insoluble in hydrochloric acid (<i>first revision</i>)
2052 : 2009	Compounded feeds for cattle — Specification (<i>fourth revision</i>)	IS/ISO 14718 : 1998	Animal feeding stuffs — Determination of aflatoxin B ₁ content of mixed feeding stuffs — Method using high-performance liquid chromatography
3470 : 2017	Hexane, food grade — Specification (<i>second revision</i>)	ISO 17375 : 2006	Animal feeding stuffs — Determination of aflatoxin B ₁
7874 (Part 1) : 1975	Methods of tests for animal feeds and feeding stuffs — Part 1 General methods		
IS/ISO 5983 (Part 1) : 2005	Animal feeding stuffs - Determination of nitrogen content and calculation of crude protein content: Part 1 Kjeldahl method		

3 GRADES

Solvent-extracted groundnut oilcake (meal) shall be of two grades, namely, Grade 1 and Grade 2.

4 REQUIREMENTS

4.1 General

The solvent-extracted groundnut oilcake (meal) shall be obtained by extraction of oil by means of a solvent from the expeller or *Ghani* pressed groundnut oilcake used. Oilcake for extraction shall have been obtained by pressing clean and sound groundnuts and shall conform to IS 1713. The meal shall have been subjected to heat and steam treatment under controlled and regulated conditions so as to remove traces of solvent. The material shall be in the form of either flakes or powder and shall be free from harmful constituents and castor oilcake, husk and *Mahua* cake. It shall also be free from

rancidity, adulterants, insect or visible fungus infestation and from musty odour.

4.2 Solvent for Extraction

Only hexane of food grade conforming to IS 3470 shall be used for extracting groundnut oilcake.

4.3 The material shall also conform to the requirements prescribed in Table 1.

Table 1 Requirement for Solvent Extracted Groundnut Oilcake (Meal) as Livestock Feed Ingredient
(*Clause 4.3*)

Sl No.	Characteristic	Requirement		Method of Test, Ref to
		Grade 1	Grade 2	
(1)	(2)	(3)	(4)	(5)
i)	Moisture, percent by mass, <i>Max</i>	8.0	8.0	4 of IS 7874 (Part 1)
ii)	Crude Protein ($N \times 6.25$), percent by mass, <i>Min</i>	50.0	45.0	IS/ISO 5983 (Part 1)* or IS 5983 (Part 2)
iii)	Crude fibre, percent by mass, <i>Max</i>	7.0	10.0	IS/ISO 6865
iv)	Acid insoluble ash, percent by mass, <i>Max</i>	2.5	2.5	Annex A of 1712 or IS 14826*
v)	Castor husk or oil cake	Absent	Absent	11 of IS 7874 (Part 1)
vi)	<i>Mahua</i> oil cake	Absent	Absent	12 of IS 7874 (Part 1)
vii)	Aflatoxin B1, ppb, <i>Max</i>	20.0	20.0	IS/ISO 14718* or ISO 17375 or AOAC 2003.02

NOTES

- 1 The values specified for requirements at Sl No. ii) to vii) are on moisture-free basis.
- 2 In case of dispute, the test methods given above and wherever indicated by '*' shall be the referee method.
- 3 For crude fibre, the manual method given in IS/ISO 6865 shall be the referee method.

5 PACKING AND MARKING

5.1 Packing

Unless otherwise agreed to between the purchaser and the vendor, the material shall be packed in clean, dry and sound jute or HDPE bags. The mouth of each bag shall be either machine-stitched or rolled over and hand stitched with strong twine. If hand-stitched, the stitches shall be with strong jute twine with at least 14 stitches in each row.

5.2 Marking

5.2.1 Each bag shall be legibly and indelibly marked with the following information:

- a) Name and grade of the material;
- b) Name and address of the manufacturer;
- c) Batch or code number;
- d) Net mass in kg;
- e) Date of packing;
- f) Best before date in month and year format and
- g) Any other requirements as specified under the *Legal Metrology (Packaged Commodities) Rules, 2011*.

5.2.2 BIS Certification Marking

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act, 2016* and the Rules and Regulations framed thereunder, and the products may be marked with the Standard Mark.

6 SAMPLING

Representative samples of the material for ascertaining conformity to the requirements of this standard shall be drawn according to the method prescribed in Annex H of IS 2052.

7 TESTS

7.1 Tests shall be carried out as prescribed in col (5) of Table 1.

7.2 Quality of Reagents

Unless specified otherwise, pure chemicals and distilled water (*see* IS 1070) shall be employed in test.

NOTE — ‘Pure chemicals’ shall mean chemicals that do not contain impurities which affect the results of analysis .

ANNEX A
(Foreword)

COMMITTEE COMPOSITION

Animal Husbandry, Feeds and Equipment Sectional Committee, FAD 05

<i>Organization</i>	<i>Representative(s)</i>
In Personal Capacity (Former Director, Indian Veterinary Research Institute, Izzatnagar)	DR R. K. SINGH (Chairman)
All India Poultry Breeders Association, New Delhi	DR. A. K. RAJPUT
Animal Welfare Board of India, Faridabad	DR PRACHI JAIN DR DEBALINA MITRA (<i>Alternate</i>)
Association of Indian Pet Food Manufacturers, New Delhi	DR AKANKSHA SINGH SHRI MANISH SINGH (<i>Alternate</i>)
Centre for Science and Environment, New Delhi	SHRI AMIT KHURANA
Centre of Analysis and Learning in Livestock and Food, Anand	DR RAJESH NAIR DR RAJEEV CHAWLA (<i>Alternate</i>)
Chhattisgarh Kamdhenu Vishwavidyalaya, Raipur	DR SANJAY SHAKYA DR MANOJ KUMAR GENDLEY (<i>Alternate</i>)
Compound Livestock Feed Manufacturers Association of India, Navi Mumbai	MS CHANDRIKA VENKATESH SHRI SURESH DEORA (<i>Alternate</i>)
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ICAR-Central Institute for Research on Buffaloes, Hisar	DR P. C. LAILER DR AVIJIT DEY (<i>Alternate</i>)

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National Dairy Research Institute, Karnal	DR NITIN TYAGI DR SACHIN KUMAR (<i>Alternate</i>)
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Panel for reviewing the Indian Standards on feed and feed ingredients, FAD 05/Panel 11

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